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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/600,751	06/20/2003	Randy K. Bledsoe	PU4803US	5089

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EXAMINER	
STEADMAN, DAVID J	

ART UNIT	PAPER NUMBER
1656	

NOTIFICATION DATE	DELIVERY MODE
11/21/2007	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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Office Action Summary	Application No.	Applicant(s)	
	10/600,751	BLEDSOE ET AL.	
	Examiner	Art Unit	
	David J. Steadman	1656	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *07 August 2007 and 31 August 2007*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *38-43* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *38-43* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Status of the Application

[1] A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 8/7/07 has been entered.

[2] Claims 38-43 are pending in the application.

[3] Applicant's amendment to claims, filed on 8/7/07, is acknowledged. This listing of the claims replaces all prior versions and listings of the claims.

[4] Applicant's arguments filed on 8/7/07 in response to the Office action mailed on 5/7/07 have been fully considered and are deemed to be persuasive to overcome some of the rejections previously applied. Rejections and/or objections not reiterated from previous office actions are hereby withdrawn.

[5] The text of those sections of Title 35, U.S. Code not included in the instant action can be found in a prior Office action.

Claim Rejections - 35 USC § 112, Second Paragraph

[6] Claims 38-43 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 38 (claims 39-43 dependent therefrom) is indefinite in the recitation of "identifying in an assay for GR-mediated activity a modeled ligand" as it is unclear as to whether the assay is intended to be conducted *in silico* or *in vitro.* It would appear that an assay for determining whether a ligand modulates GR polypeptide activity would be conducted *in vitro.* However, the claim recites "identifying...a *modeled* ligand" (emphasis added), suggesting that the assay uses a model of a ligand, *i.e.,* a 3-D structural representation of a ligand, rather than using a chemical/physical ligand. It is suggested that applicant clarify the meaning of the noted phrase. In the interest of advancing prosecution, the examiner has interpreted the noted phrase as meaning the assay is conducted *in vitro* using a chemical/physical form of the modeled ligand – not an *in silico* assay conducted using a model of the ligand.

Also, in view of the indefinite article "a" in the phrase "a modeled ligand" in claim 38(c), it is unclear as to whether "a modeled ligand" as recited in claim 38(c) is the same as "a ligand" as recited in claim 38(b). If applicant intends for "a ligand" as recited in claim 38(b) to be used as the ligand in claim 38(c), it is suggested that the claim provide a nexus between the ligand of claim 38(b) and the ligand of claim 38(c).

Claim Rejections - 35 USC § 112, First Paragraph

[7] The new matter rejection (5/7/07 Office action, paragraph 8 beginning at p. 3), the written description rejection (5/7/07 Office action, paragraph 9 beginning at p. 4), and the scope of enablement rejection (5/7/07 Office action, paragraph 10 beginning at p. 6) of claims 38-43 under 35 U.S.C. 112, first paragraph, are withdrawn in view of the

amendment to limit the structural coordinates of the GR polypeptide structure to the structural coordinates of Table 2.

Claim Rejections - 35 USC § 103

[8] Claims 38-43 are rejected under 35 U.S.C. 103(a) as being unpatentable over Apolito et al. (WO 03/015692; cited in the IDS filed 5/3/2004; "Apolito") in view of *In re Gulack* 217 USPQ 401 (Fed. Cir. 1983) and *In re Ngai* 70 USPQ2d 1862 (Fed. Cir. 2004). The teachings of Apolito stated below were first disclosed in US provisional application 60/305,902, to which WO 03/015692 claims domestic priority under 35 USC 119(e). See MPEP §§ 2144 and 2144.04 regarding legal precedent as a source of rationale for rejection under 35 U.S.C. § 103. See also MPEP §§ 2106.IV.B.1.(b) and 2106.VI regarding determination of whether descriptive material is functional or non-functional.

Claims 38-43 are drawn to a method for identifying a GR modulator using a computerized model of GR having the structural coordinates of Table 2 and identifying in an assay for "GR-mediated activity" a ligand that modulates GR polypeptide activity.

Apolito teaches a method for identifying a GR modulator by computer modeling of the structure of the ligand binding domain of a human GR that comprises a sequence that is 100% identical to SEQ ID NO:6 herein (see Appendix A of the 9/20/05 Office action) complexed with a TIF2 co-activator peptide, which comprises a sequence that is 100% identical to SEQ ID NO:9 herein (see Appendix B of the 9/20/05 Office action), and a dexamethosone agonist; identifying modeled compounds, including non-steroid

compounds, that interact with the human GR ligand binding domain; and screening the compound for its effect on the activity of a GR polypeptide (see particularly pp. 14 and 54-66 and claims 82, 84, and 88). The difference between the prior art and the instant claims is the structural data of Apolito is different from that of Table 2 herein.

In *Gulack* and *Ngai,* the respective Courts held that nonfunctional descriptive material in a claim does not distinguish the prior art in terms of patentability. The key factor in analyzing the obviousness of these claims over the prior art is the determination that the computer algorithm used to identify compounds is a known algorithm and is unmodified. If the difference between the prior art and the claimed invention as a whole is limited to descriptive material stored on or employed by a machine, it is necessary to determine whether the descriptive material is functional descriptive material or nonfunctional descriptive material. In this case, because the GR polypeptide structural coordinates of Table 2 do not have a functional relationship with the computer upon which they are stored, the structural coordinates are considered to be non-functional descriptive material and the method uses a known unmodified computer algorithm. Data, which are fed into a known algorithm whose purpose is to compare or modify those data using a series of processing steps, do not impose a change in the processing steps and are thus nonfunctional descriptive material. A method of using a known comparator for its known purpose to compare data sets does not become nonobvious merely because new data becomes available for analysis. Nonfunctional descriptive material cannot render nonobvious an invention that would have otherwise been obvious.

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to practice the method of Apolito, wherein only non-functional descriptive material is additionally present in the claims, which, according to *In re Gulack* or *In re Ngai,* do not distinguish the claimed method from that taught by the prior art. One of ordinary skill in the art would have been motivated to practice the *in silico* screening method of Apolito because of the express teachings of Apolito to practice such method. One would have had a reasonable expectation of success for practicing the method of Apolito because of the teachings of Apolito. Therefore, claims 38-43, drawn to the method described above, would have been obvious to one of ordinary skill in the art at the time of the invention.

[9] Claims 38-42 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gillner et al. (WO 00/52050; cited in the IDS filed 5/3/2004; "Gillner") in view of Högger et al. (*Steroids* 59:597-602; cited in the 9/20/05 Office action; "Högger"), *In re Gulack* 217 USPQ 401 (Fed. Cir. 1983), and *In re Ngai* 70 USPQ2d 1862 (Fed. Cir. 2004).

Claims 38-42 are drawn to methods as described above.

Gillner teaches computerized modeling of human GR with various steroid ligands (*e.g.,* pp. 12-13), *in vitro* assays of these ligands with GR to determine binding affinities (*e.g.,* p. 16, bottom), and a method of rational drug design using a GR model to identify new GR ligands (p. 6 and claims 12-13). The difference between the prior art and the instant claims is the structural data of Gillner is different from that of Table 2 herein and Gillner does not teach a screening assay as set forth in claim 38, part c).

Högger et al. teaches a method for *in vitro* measurement of GR-ligand binding activity using a partially purified human GR polypeptide (p. 598).

In *Gulack* and *Ngai,* the respective Courts held that nonfunctional descriptive material in a claim does not distinguish the prior art in terms of patentability. The key factor in analyzing the obviousness of these claims over the prior art is the determination that the computer algorithm used to identify compounds is a known algorithm and is unmodified. If the difference between the prior art and the claimed invention as a whole is limited to descriptive material stored on or employed by a machine, it is necessary to determine whether the descriptive material is functional descriptive material or nonfunctional descriptive material. In this case, because the GR polypeptide structural coordinates of Table 2 do not have a functional relationship with the computer upon which they are stored, the structural coordinates are considered to be non-functional descriptive material and the method uses a known unmodified computer algorithm. Data, which are fed into a known algorithm whose purpose is to compare or modify those data using a series of processing steps, do not impose a change in the processing steps and are thus nonfunctional descriptive material. A method of using a known comparator for its known purpose to compare data sets does not become nonobvious merely because new data becomes available for analysis. Nonfunctional descriptive material cannot render nonobvious an invention that would have otherwise been obvious.

At the time of the invention, it would have been obvious to one of ordinary skill in the art to combine the teachings of Gillner and Högger to practice the rational drug

design method of Gillner and to further analyze the binding activity of the modeled compound *in vitro* according to the method of Högger, wherein only non-functional descriptive material is additionally present in the claims, which, according to *In re Gulack* or *In re Ngai,* do not distinguish the claimed method from that taught by the prior art. One would have been motivated to do this in order to determine whether a modeled ligand has the ability to bind to GR *in vitro* and to compare its binding activity to other known GR ligands. One would have a reasonable expectation of success for practicing the method of Gillner and to further analyze the binding activity of the modeled compound *in vitro* according to the method of Högger because of the results of Gillner and Högger. Therefore, claims 38-43, drawn to the method described above would have been obvious to one of ordinary skill in the art at the time of the invention.

[10] Claim 43 is rejected under 35 U.S.C. 103(a) as being unpatentable over Gillner (*supra*) in view of Högger (*supra*), *In re Gulack* 217 USPQ 401 (Fed. Cir. 1983), and *In re Ngai* 70 USPQ2d 1862 (Fed. Cir. 2004) as applied to claims 38-42 above, and further in view of Jones et al. (US Patent 5,688,808; "Jones").

The teachings of Gillner and Högger are set forth above. Also, the examiner's obviousness rationale relying on the case law of *In re Gulack* and *In re Ngai* is fully explained above. The combination of Gillner and Högger do not fairly suggest screening for non-steroidal modulators of human GR.

Jones teaches a series of compounds that are modulators of hormone receptors, including GR, that are non-steroidal. Jones teaches such non-steroidal modulators can

have reduced side effects relative to steroidal modulators of hormone receptors. See, *e.g.,* columns 1-2.

At the time of the invention, it would have been obvious to one of ordinary skill in the art to combine the teachings of Gillner, Högger, and Jones to practice the rational drug design method of Gillner to screen for non-steroidal compounds and to further analyze the binding activity of the modeled compound *in vitro* according to the method of Högger, wherein only non-functional descriptive material is additionally present in the claims, which, according to *In re Gulack* or *In re Ngai,* do not distinguish the claimed method from that taught by the prior art. One would have been motivated to screen for non-steroidal compounds since Jones teaches such hormone receptor modulators may have reduced side effects. One would have a reasonable expectation of success for practicing the method of Gillner, screening for non-steroidal modulators of GR and to further analyze the binding activity of the modeled compound *in vitro* according to the method of Högger because of the results of Gillner, Högger, and Jones. Therefore, claim 43, drawn to the method described above would have been obvious to one of ordinary skill in the art at the time of the invention.

[11] RESPONSE TO ARGUMENT: Applicant argues that because the recited structural coordinate data is used in method claims – not claims directed to mathematical algorithms, computer readable media, or compilations of data – it represents a functional element of the methods, wherein the claims depend upon the structural information, and should be accorded patentable weight. Applicant argues the

Gulack and *Ngai* cases are non-analogous as these cases were directed to the issue of printed matter. Applicant argues that, according to *Lowry,* if there is a functional relationship, the claim limitation must be given patentable weight. Applicant argues the claimed methods depend functionally on the coordinate data of Table 2, which is critical to the claim, and thus "must be considered to properly construe the claim's scope."

Applicant's argument is not found persuasive. According to *Gulack,* "[w]here the printed matter is not functionally related to the substrate, the printed matter will not distinguish the invention from the prior art in terms of patentability. Although the printed matter must be considered, in that situation it may not be entitled to patentable weight...[T]he critical question is whether there exists any new and unobvious functional relationship between the printed matter and the substrate." As noted in the prior Office action, the recited structural coordinate data appear to be used merely as input for a known computer algorithm that, in combination with the elements of the computer, generates a three-dimensional protein structure. In other words, the data do not affect how the computer performs or functions – the computer would appear to function in the same way regardless of whether or not the data is stored in a computer's machine-readable data storage medium. The examiner's position that the recited coordinate data is non-functional descriptive material is further supported by MPEP 2106.VI, which provides "[c]ommon situations" that involve nonfunctional descriptive material, including "a computer-readable storage medium that differs from the prior art solely with respect to nonfunctional descriptive material, such as music or a literary work, encoded on the medium" and "a computer that differs from the prior art solely with respect to

nonfunctional descriptive material that cannot alter how the machine functions (i.e., the descriptive material does not reconfigure the computer)." These "common situations" are analogous to the instantly claimed method that differs from the prior art method solely with respect to the non-functional descriptive material of the coordinate data, which does not alter how the computer functions. See also Cases 6 and 7 of "Annex 3: Comments of the USPTO" of the "Trilateral Project WM4, Comparative studies in new technologies (biotechnology, business methods, etc.), Report on comparative study on protein 3-dimensional (3-D) structure related claims", Vienna, Austria November 4-8, 2002, pp. 69-76.

According to MPEP 2106.01, "'functional descriptive material' consists of data structures and computer programs which impart functionality when employed as a computer component. (The definition of 'data structure' is 'a physical or logical relationship among data elements, designed to support specific data manipulation functions'" (emphasis added) and that "'Nonfunctional descriptive material" includes but is not limited to music, literary works, and a compilation or mere arrangement of data'". In this case, the method involves using a computer and a known algorithm to transform the data into a 3-D macromolecular structure. The structural coordinates appear to be an arrangement of data and do not appear to affect how the computer performs or functions and the computer would appear to function in the same way regardless of whether or not the data is stored in a computer's machine-readable data storage medium, in the same way as music or a literary work stored on a computer would not affect its function. Contrast the atomic coordinate data with the data structure of *Lowry,*

which, according to MPEP 2106.01, when stored on a computer readable medium, increases computer efficiency. As noted above, there is no evidence of record that the recited structural data interact with other computer hardware or software to affect the efficiency or accuracy or any other characteristic of computer processing. Consequently, for reasons of record and the reasons set forth above, the structural coordinate data of Table 2 has not been accorded patentable weight.

However, that the structural coordinate data is non-functional does not by itself render the claimed invention obvious in view of the cited prior art. According to *Gulack,* with the exception of the non-functional descriptive material, the prior art must teach all limitations of the claims. As noted above and undisputed by applicant, the prior art, with the exception of the coordinate data of Table 2, teaches all claim limitations. Consequently, the claimed invention would have been obvious to one of ordinary skill in the art at the time of the invention.

Conclusion

[12] Status of the claims:

Claims 38-43 are pending.

Claims 38-43 are rejected.

No claim is in condition for allowance.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to David J. Steadman whose telephone number is 571-272-0942. The examiner can normally be reached on Monday to Friday, 7:30 am to 4:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kathleen Kerr Bragdon can be reached at 571-272-0931. The fax phone

number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

/David J. Steadman/
David J. Steadman, Ph.D.
Primary Examiner
Art Unit 1656